Running Python Code

IDLE and Command line
How do we create Python code
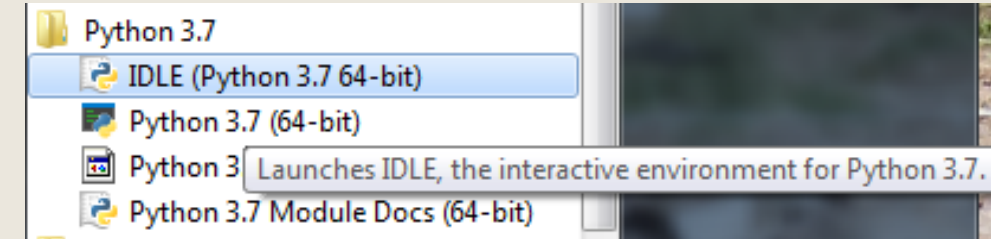
IDLE – python's IDE (Integrated Development Environment)
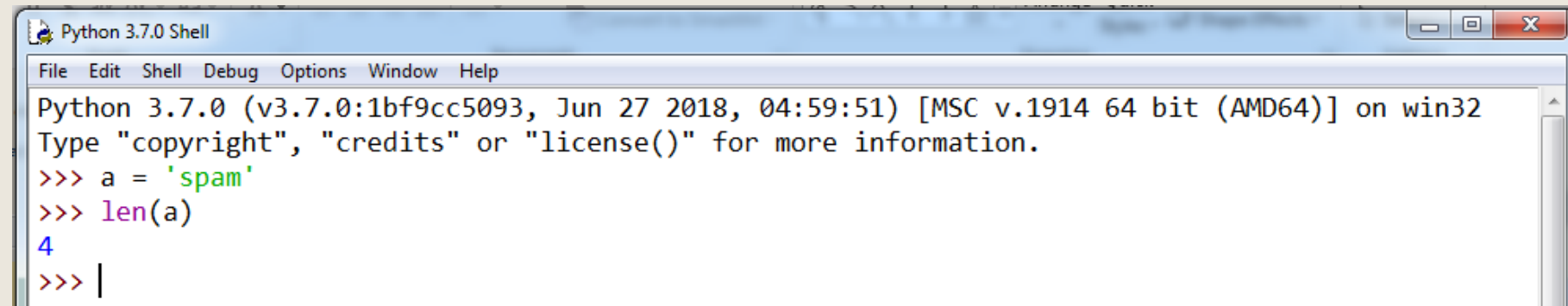
Two ways to run code:

1. **Interactive** Interpreter – "Python **Shell**"

- – *Syntax Highlighting/Colouring – spot errors*

- – *Auto Completion with <TAB>*

- – *Statement History <ALT+P> <ALT+N>*

- – *function(and module. popups*

- – *auto indent for code blocks*

- – *Debugger, Object Browser*

Great for experimenting

IDLE Shell

Python 3.6.1 Shell

```
>>> var = 'hacker'
>>> var
'hacker'
>>> var1
Traceback (most recent call last):
  File "<pyshell#2>", line 1, in <module>
    var1
NameError: name 'var1' is not defined
>>> var**5
Traceback (most recent call last):
  File "<pyshell#3>", line 1, in <module>
    var**5
TypeError: unsupported operand type(s) for ** or pow(): 'str' and 'int'
>>> var = 6
>>> var**6
46656
>>> |
```

Dynamic Typing – no declaration - quick

Strongly Typed

Dynamic Typing – now var is a integer

Ln: 19   Col: 4

Running files from IDLE

2. Create .py Script/Module files & Run from IDLE

- **File>New File** - opens editor - add code, save as .py file

- **Run > Run Module(F5)** - runs .py file code in Interpreter shell – easier and faster than import/reload()


```
# Script: Hello World
# Author: Petra
# Created: 12/07/17
#
print ("hello world")
print ('hello Hazel')
print ("hello Monty Python's Flying Circus")
```

```
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
============ RESTART: F:\Dropbox\CSN08114 Python\hello_world1.py ============
hello world
hello Hazel
hello Monty Python's Flying Circus
>>>
```

Great for keeping and re-using code

Is there anything you notice about this code?

Scripting for Cybersec & Networks

Other IDEs (Integrated Development Environments)

- You could just use any text editor to write Python scripts
  - *Notepad++ can highlight syntax*

- There are also lots of other IDEs

PyCharm   IDLE   PyScripter   Stani's Python Editor   Thonny   Spyder   Wing IDE   Komodo Edit   Atom   Geany   KDevelop   Leo   SharpDevelop

- *You are welcome to use any IDE but module materials use IDLE*
- *I have seen students use PyCharm, Spyder, Komodo*

Instead of IDLE or another IDE, you can use the command line directly

Interactive Interpreter (command line)

- Type Python in command line to open interpreter
- Type Code at CLI **>>> prompt**

Type **python** or **py or py -3.7** to run Interpreter

```
Administrator: Windows Command Processor - py -3.7
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation.  All rights reserved.

C:\Windows\System32>py -3.7
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

Python Interpreter prompt **>>>**

- *commands are evaluated/executed immediately*

```
>>> print ("hello Brian!")
hello Brian!
>>>
```

- *Can type entire program into interpreter!*

7

Interactive Interpreter (command line)

- *Don't have to use print at >>> Interpreter prompt*
  - prints expressions automatically

```
Type  help , copyright ,  c
>>> print ('hello brian')
hello brian
>>> 'hello everyone'
'hello everyone'
>>> a='hello'
>>> a
'hello'
>>>
```

Use Interpreter for:

- *Experimenting – executes code immediately, try out small examples of code, good error messages, can add code to script if works!*

- *Testing code in files – import code from a file and run to test.*

  Test individual functions from code modules.

Run script at command line

Create text file containing Python code;
typical extension `'.py'`
Code file - contains Python statements.


```
1   # script: hello_world
2   # author: Petra
3   # created: 1/8/17
4   #
5   print ("hello world")
6   print ("hello Petra")
7
```

Run '.py' code file through the Python interpreter - it executes each statement.

```
F:\Dropbox\CSN08114 Python>python hello.py
hello world
hello Petra
```

Use code files to save and reuse code!

Scripting for Cybersec & Networks